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10/536,625	03/02/2006	Sebastien Bouat	B-5727PCT 622708-2	2264

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EXAMINER
PHUNG, LUAT

ART UNIT	PAPER NUMBER
2416	

NOTIFICATION DATE	DELIVERY MODE
09/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/536,625	BOUAT, SEBASTIEN
	Examiner	Art Unit	
	LUAT PHUNG	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 June 2009</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-36</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-36</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's arguments filed on June 11, 2009 have been fully considered but they are not deemed to be persuasive.

2.   Claims 1-36 are pending.

3.   Claims 1, 2, 4-6, 8-12, 15-19, 27-31 and 33-36 have been amended.

4.   Claims 1-36 are rejected.

5.   On page 11, applicant's representative argues that:

Iyer fails to teach or even suggest an application provides a message to a layer of the protocol stack and the protocol stack layer adds layer context to the message.

On page 12, applicant's representative argues that:

Claim 1 also requires "such that a response to the message contains the context information." The Examiner admits that Iyer fails to teach these limitations (Office Action, p. 4). The Examiner cites Iyer [0045], [0072] as allegedly teaching "a response." However, Iyer teaches a response from the socket 415 to the application 405. Claim 1 has been amended to clarify that "the response is received from the destination node." Support for this amendment can be found at least at page 10, lines 1-3 of the specification. Moreover, the Iyer cookie only identifies the socket. (Iyer [0044]). Iyer fails to teach or even suggest that the cookie includes context information, and one skilled in the computer arts would not understand a cookie that identifies a socket to include layer context information.

On page 13, applicant's representative argues that:

Claim 35 has been amended to include the computing device limitations explained with regard to claim 1, and to recite, "a response to the message contains context information needed to restore a pre-switchover context of the layer." Support for the amendment can be found at least at page 10, line 30 to page 11, line 2 of the specification, Iyer fails to teach or even suggest a response containing such information."

Examiner respectfully disagrees.

Hello, Conley Rose Dallas!

As a recap of the rejection of claim 1, Iyer discloses ...

providing, by the computing device, the outgoing message from an application to a layer of the protocol stack, the outgoing message is destined for an application on a destination node; (Fig. 4, 5; para. 19, 44-46; application 405 using socket library to send instruction to socket layer 415, i.e., application sending outgoing message to a layer of the protocol stack, to establish redundant socket on standby side; socket layer sending message with socket parameters to standby socket layer 430 and application 405 sending cookie to standby application 420, i.e., outgoing message is destined for an application on a destination node; message-based interaction among application, socket library and socket layer, i.e., between application and layer)

...

adding, by the computing device, the obtained context information to the outgoing message. (Fig. 4, 5; para. 44-46, 60; all socket operations, i.e., context

information at socket layer, are automatically transferred by socket layer, i.e., computing device, to the standby node)

Iyer further discloses sending a response message (Fig. 5, elements 520, 550; para. 44, 72). Iyer discloses all of the subject matter except *such that a response to the message contains the context information, the response is received from the destination node, and the context information is needed to restore a pre-switchover context of the layer.* However Iyer discloses establishing control and data redundancy for the socket layer, and seamless switchover by the standby node when the active node fails (para. 46, 63). Thus it would have been obvious to the person of ordinary skill in the art at the time of the invention to send a response from the standby node when a failure is detected at the active node, the response containing context information of the socket layer, the context information being restored prior to the switchover, to ensure data redundancy with the active-turned-standby node, in order to perform a seamless switchover.

Specifically Iyer discloses context information as all the data required to configure a redundant socket layer, including cookie, socket id, socket parameters, and socket control operations, through the interaction between the application and the socket layer on the active side and the same on the standby side. The examiner notes the broadest reasonable interpretation in light of Applicant's specification. In Iyer the application controls the procedure of creating a redundant socket layer by invoking the socket library to send context information from the standby side to the active side, and in response to switchover, sending context information from the standby-turned-active

side back to the previously-active side by performing a seamless switchover, ensuring

redundancy of context information on both sides. Thus it's clear that Iyer teaches

having the context information in the outgoing message and the response, the context

information being added by a layer of the protocol stack, as claimed.

6.   On pages 13-14, applicant's representative argues that:

        Claim 11 requires "receiving a message." The Examiner cites Iyer [0054] as

teaching these limitations. However, as explained by the Examiner (Office Action, p. 5),

the cited location teaches detection of a switchover. Such detection does not suggest

"receiving a message" as required by claim 11.

        Claim 11 also requires "determining ... whether the context information of the

layer is to be restored." The Examiner cites Iyer [0051] as teaching these limitations,

Iyer [0051] teaches application of the connect operation to the active and/or standby

sides. The connect operation is not related to determining whether the context

information of a layer should be restored, Iyer does not teach or suggest restoring

context, but rather teaches switching to the standby side, which uses whatever context

it has at switchover.

        Claim 11 further requires "restoring the context of the layer." As explained above,

Iyer does teach or even suggest "restoring the context of the layer," but rather teaches

using a standby system in whatever state the system stands at switchover. The

Examiner admits Iyer2 fails to teach "where it is so determined [that context should be

restored], determining the presence of context information relevant to the layer within

the message" and "restoring . using context information from the message." (Office

Action, p. 6). The Examiner suggests the cookie and the association of the sockets

make these limitations obvious. Id, However, an identifying cookie is not and in no way

suggests context information relevant to the layer as required by claim 11 or using such

information to restore the layer as required by claim 11. Thus, the context and

restoration cannot be obvious based on the cookie and association. Moreover, the

Examiner has not explained how "determining the presence" is based on "determining

whether the context information of the layer is to be restored" as required by claim 11.

Examiner respectfully disagrees.

As a recap of the rejection of claim 11, Iyer discloses ...

receiving a message by a computing device; (para. 54, 59; application on the

standby-turned-active side awoken with error, i.e., computing device receiving a

message, when socket layer detects on the standby-turned-active side detects

switchover)

determining, by the computing device, whether the context information of the

layer is to be restored; (para. 54; error having error code ESWITCHOVER, indicating

application should be come active) and

where it is so determined,

determining, by the computing device, the presence of context information

relevant to the layer within the message; (para. 54; error having error code

ESWITCHOVER, i.e., context information in the message, indicating application should

become active) and

restoring, by the computing device, the context of the layer using context information from the message. (para. 46, 54, 60, 63; application calling connect to initiate the TCP state machine, i.e. restoring context of the TCP layer; standby side taking over seamlessly, i.e., using restored context data previously received in message from active side)

Specifically Iyer discloses context information as all the data required to maintain a redundant configuration, even after a switchover having being initiated by the standby side receiving a message. In Iyer, seamless switchover involves initiating the TCP state machine on the standby-turned-active side, thereby restoring the context information previously received from the then-active side. Thus it's clear that Iyer teaches all the claimed limitations.

7.   Examiner's Note: Examiner has cited particular paragraphs, columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s)

the structure relied on for proper interpretation and, also to verify and ascertain the

metes and bounds of the Claimed invention.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

> 1.   Determining the scope and contents of the prior art.
> 2.   Ascertaining the differences between the prior art and the claims at issue.
> 3.   Resolving the level of ordinary skill in the pertinent art.
> 4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

10.   Claims 1, 2, 4-6, 10-14, 18, 19, 21-23, 27, 35 and 36 are rejected under U.S.C.

103(a) as being unpatentable over Iyer, et al (US Pub. 2004/0088418) in view of Ho, et

al (US 6,910,148).

Regarding claims 1, 18 and 35, Iyer discloses a method of, and a system (Fig.

3, element 340A; Fig. 4, element 402) for, storing context information in an outgoing

message sent from a node including a computing device using a protocol stack having

at least one layer, comprising:

providing, by the computing device, the outgoing message from an application to

a layer of the protocol stack, the outgoing message is destined for an application on a

destination node; (Fig. 4, 5; para. 19, 44-46; application 405 using socket library to send instruction to socket layer 415, i.e., application sending outgoing message to a layer of the protocol stack, to establish redundant socket on standby side; socket layer sending message with socket parameters to standby socket layer 430 and application 405 sending cookie to standby application 420, i.e., outgoing message is destined for an application on a destination node; message-based interaction among application, socket library and socket layer, i.e., between application and layer)

selectively indicating to the layer of the protocol stack that context information is to be obtained for that layer; (Fig. 4, 5; para. 44-46; socket layer receiving instruction to establish a redundant socket; socket-related operations invoked to create redundancy at socket layer)

obtaining, by the computing device, context information in accordance with the indication; (Fig. 4, 5; para. 44-46; all socket operations, i.e., context information at socket layer, are automatically transferred by socket layer of the active side, i.e., computing device, to the standby side) and

adding, by the computing device, the obtained context information to the outgoing message. (Fig. 4, 5; para. 44-46, 60; all socket operations, i.e., context information at socket layer, are automatically transferred by socket layer, i.e., computing device, to the standby node)

Iyer further discloses sending a response message (Fig. 5, elements 520, 550; para. 44, 72). Iyer discloses all of the subject matter except *such that a response to the message contains the context information, the response is received from the destination*

node, and the context information is needed to restore a pre-switchover context of the

layer. However Iyer discloses establishing control and data redundancy for the socket

layer, and seamless switchover by the standby node when the active node fails (para.

46, 63). Thus it would have been obvious to the person of ordinary skill in the art at the

time of the invention to send a response from the standby node when a failure is

detected at the active node, the response containing context information of the socket

layer, the context information being restored prior to the switchover, to ensure data

redundancy with the active-turned-standby node, in order to perform a seamless

switchover.

      Furthermore Ho from an analogous art discloses replicating BGP and TCP

databases, i.e., context information, using bulk update operation, i.e., in the outgoing

messages, from the active card to the standby card (Fig. 28, element 2802; col. 9, lines

9+; col. 30, lines 45+). In this procedure Ho discloses performing bulk updating for

redundancy by replicating BGP and TCP databases, i.e., context information, previously

received from the then-active card. Thus it would have been obvious to one of ordinary

skill in the art to replicate the databases, by sending a message containing context

information previously received, as suggested by Ho, in the redundancy system of Iyer

in order to implement a graceful switchover to ensure high availability.

      Regarding claims 2 and 19, Ho further discloses further comprising adding

context information obtained from a different protocol stack layer to the outgoing

message. (col. 8, lines 19-51; col. 9, lines 17+)

Regarding claims 4 and 21, Iyer in view of Ho further discloses used with a

message-based communications system. (para. 19, 27)

Regarding claims 5 and 22, Iyer in view of Ho further discloses wherein the

step of obtaining context information obtains context information related to the outgoing

message. (para. 46, 63)

Regarding claims 6 and 23, Iyer in view of Ho further discloses wherein the

step of adding the obtained context information appends the context information to a

separate field of the message. (para. 44)

Regarding claims 10 and 27, Ho further discloses further comprising adding, to

the message, an indication associated with the obtained context data where it is

determined that the context data is potentially inaccurate or incomplete. (col. 21, lines

16+; col. 22, lines 21+; if update fails, use negative acknowledgement, i.e., sending an

indication if context data is incomplete)

Regarding claims 11 and 36, Iyer discloses a method, and a system, of

restoring the context information of a layer of a protocol stack of a node comprising:

receiving a message by a computing device; (para. 54, 59; application on the

standby-turned-active side awoken with error, i.e., computing device receiving a

message, when socket layer detects on the standby-turned-active side detects

switchover)

determining, by the computing device, whether the context information of the

layer is to be restored; (para. 54; error having error code ESWITCHOVER, indicating

application should be come active) and

where it is so determined,

determining, by the computing device, the presence of context information relevant to the layer within the message; (para. 54; error having error code ESWITCHOVER, i.e., context information in the message, indicating application should become active) and

restoring, by the computing device, the context of the layer using context information from the message. (para. 46, 54, 60, 63; application calling connect to initiate the TCP state machine, i.e. restoring context of the TCP layer; standby side taking over seamlessly, i.e., using restored context data previously received in message from active side)

Iyer discloses all of the subject matter as recited above. However assuming *arguendo* that Iyer does not explicitly disclose:

receiving a message by a computing *device.*

Ho from an analogous art discloses the standby card receiving a message (from the active card to become active) (col. 18, lines 32+). Ho further discloses the switchover process at the standby card, including determining whether context information needs to be restored, determining presence of context information, and restoring context information (Fig. 9, standby card 950; Fig. 12A, inform tasks to become active 1208, 1212; col. 19, lines 11-33). In Ho, context information pertains to particular layers such as BGP or TCP (Fig. 21A, 21B). Thus it would have been obvious to one of ordinary skill in the art to have the standby side receive a message to become active as suggested by Ho and determining and restoring context information in

the system of Iyer in order to implement a graceful switchover to ensure high
availability.

Regarding claim 12, Iyer in view of Ho further discloses wherein the step of
determining determines whether the context information of the layer should be restored
based in part on the context information of the layer and in part on the received
message. (para. 44, 50-54)

Regarding claim 13, Iyer in view of Ho further discloses wherein the step of
determining further comprises checking the existence at the layer of context information
associated with the received message. (para. 44, 50-54)

Regarding claim 14, Iyer in view of Ho further discloses wherein the step of
determining further comprises checking whether the received message is an initial
message. (para. 44-45)

11.   Claims 3, 7-9, 15-17, 20 and 24-26 are rejected under U.S.C. 103(a) as being
unpatentable over Iyer, et al in view of Ho, et al, and further in view of Lau, et al (US
Pub. 2003/0046604) or Vasavada, et al (US Pub. 2004/0078619).

Regarding claims 3 and 20, the combination of Iyer and Ho discloses all of the
subject matter as recited previously in this office action except *wherein the outgoing
message is sent from the node to a remote node across a network*. However,
redundant configuration including active and standby nodes across a network is well
known in the art. In particular Lau from the same or similar fields of endeavor discloses
an active control card communicates over a communication such as Ethernet with a

standby control card. (Lau para. 24) Thus it would have been obvious to the person of
ordinary skill in the art at the time of the invention to configure the standby and active
nodes of network Iyer and Ho in the remote arrangement suggested by Lau. The
motivation for doing so would have been to improve switchover in the event of failure.

Regarding claims 7-9, 15-17 and 24-26, the combination of Iyer and Ho
discloses all of the subject matter as recited previously in this office action except:

for use with a session initiation protocol (SIP) network, as recited in claims 7, 15
and 24;

*wherein the step of adding the obtained context information is adapted for
appending the context information to a SIP TAG field*, as recited in claims 8, 16 and 25;
and

*wherein the step of adding the obtained context information is adapted for
appending the context information to a SIP extension header*, as recited in claims 9, 17
and 26.

Lau or Vasavada from the same or similar fields of endeavor discloses
implementing redundancy for MPLS and IS-IS protocols using the same base
architecture (title, abstract). Thus it would have been obvious to the person of ordinary
skill in the art at the time of the invention to apply the redundancy system of Iyer and
Ho, not only to TCP/UDP (Iyer, para. 10), but also for SIP by using the protocol-specific
messaging to carry context information in order to facilitate high availability.

12.   Claims 28-31 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al.

        Regarding claim 28, Iyer discloses a system of restoring the context information of a layer of a protocol stack of a node comprising:

        receiving means for receiving a message; (para. 54, 59; application on the standby-turned-active side awoken with error, i.e., computing device receiving a message, when socket layer detects on the standby-turned-active side detects switchover)

        logic for determining whether the context information of the layer is to be restored; (para. 54; error having error code ESWITCHOVER, indicating application should be come active)

        a circuit for determining the presence of context information relevant to the layer within the message; (para. 54; error having error code ESWITCHOVER, i.e., context information in the message, indicating application should become active) and

        restoration means for restoring the context of the layer using context information from the message. (para. 46, 54, 60, 63; application calling connect to initiate the TCP state machine, i.e. restoring context of the TCP layer; standby side taking over seamlessly, i.e., using restored context data previously received in message from active side)

        Iyer discloses all of the subject matter as recited above. However assuming *arguendo* that Iyer does not explicitly disclose:

        receiving means for receiving a message.

However Iyer discloses the application on the standby-turned-active side awoken with error. (para. 54) It would have been obvious to one of ordinary skill in the art that the error is received in a form of a message as message-based systems are well known in the communications art.

Regarding claim 29, Iyer further discloses wherein the step of determining determines whether the context information of the layer should be restored based in part on the context information of the layer and in part on the received message. (para. 44, 50-54)

Regarding claim 30, Iyer further discloses wherein the step of determining further comprises checking the existence at the layer of context information associated with the received message. (para. 44, 50-54)

Regarding claim 31, Iyer further discloses wherein the step of determining further comprises checking whether the received message is an initial message. (para. 44-45)

13.   Claims 32-34 are rejected under U.S.C. 103(a) as being unpatentable over Iyer, et al in view of Lau, et al or Vasavada, et al.

Regarding claims 32-34, Iyer discloses all of the subject matter as recited previously in this office action except:

for use with a session initiation protocol (SIP) network, as recited in claim 32;

wherein the step of adding the obtained context information is adapted for appending the context information to a SIP TAG field, as recited in claim 33; and

wherein the step of adding the obtained context information is adapted for

appending the context information to a SIP extension header, as recited in claim 34.

Lau or Vasavada from the same or similar fields of endeavor discloses

implementing redundancy for MPLS and IS-IS protocols using the same base

architecture (title, abstract). Thus it would have been obvious to the person of ordinary

skill in the art at the time of the invention to apply the redundancy system of Iyer, not

only to TCP/UDP (Iyer, para. 10), but also for SIP by using the protocol-specific

messaging to carry context information in order to facilitate high availability.

Conclusion

14.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure (see form 892).

15.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

16.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUAT PHUNG whose telephone number is (571) 270-3126. The examiner can normally be reached on M-Th 7:30 AM - 5:00 PM, F 7:30 AM - 4:00 PM.

         If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Q. Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

         Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. P./

Examiner, Art Unit 2416

         /Ricky Ngo/

         Supervisory Patent Examiner, Art Unit 2416